FIG. 1

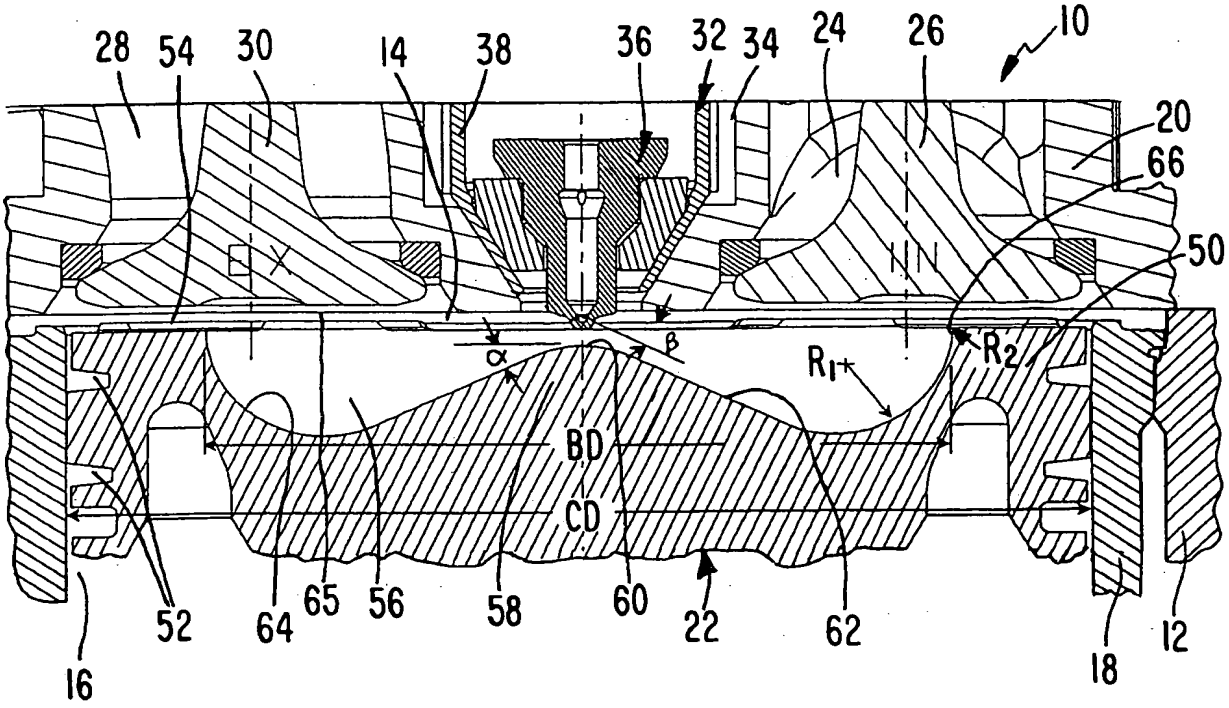

28
54
30
14
38
36
32
34
24
26
10
20
66
50
α
β
R1
R2
BD
CD
52
64
65
56
58
60
22
62
18
12
16

FIG. 2

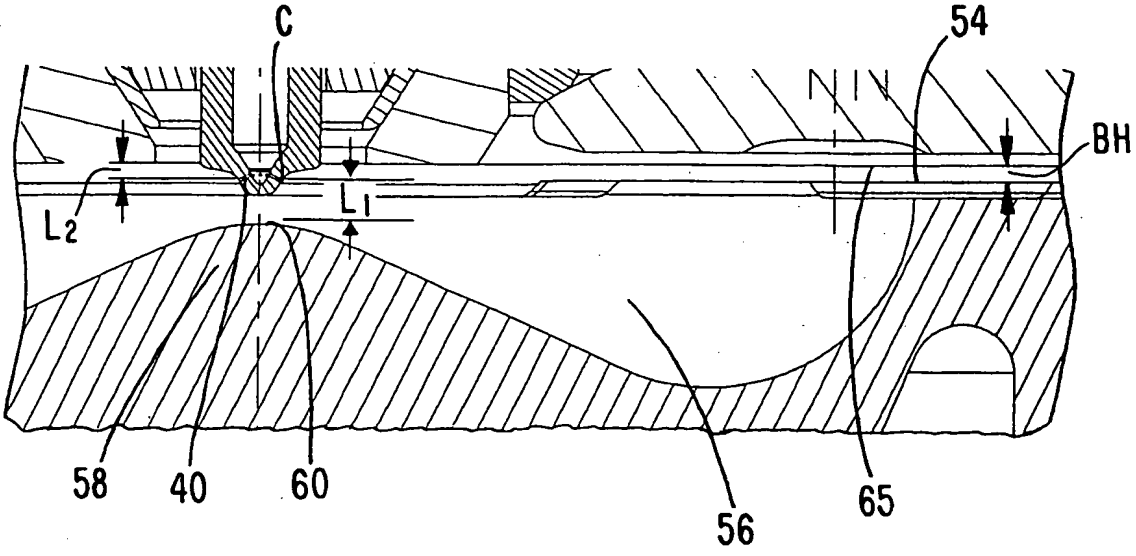

C
54
BH
L2
L1
58
40
60
56
65

FIG. 3a

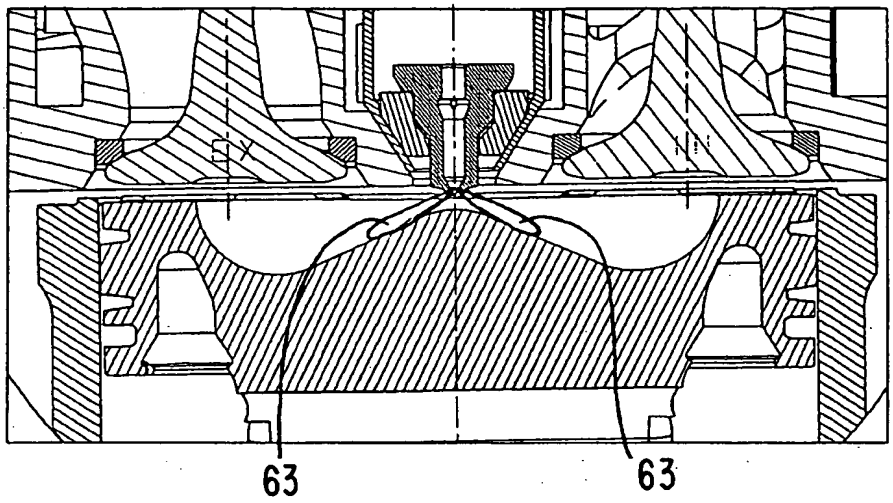


FIG. 3b

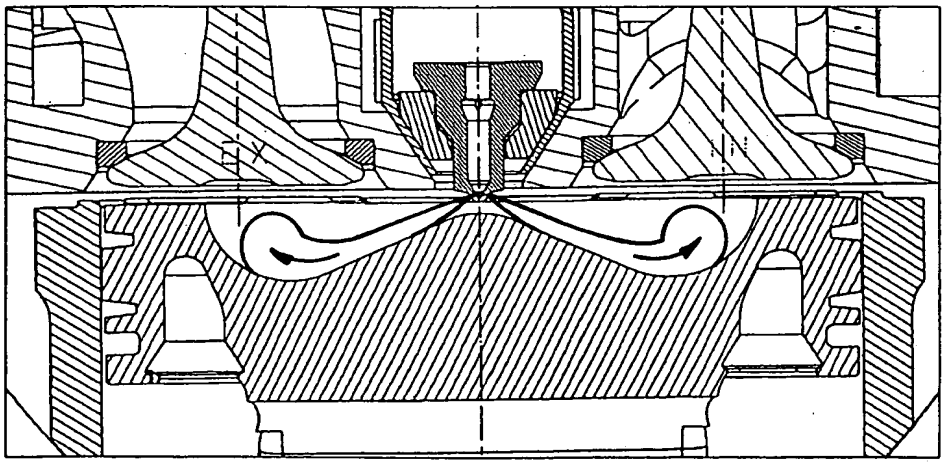
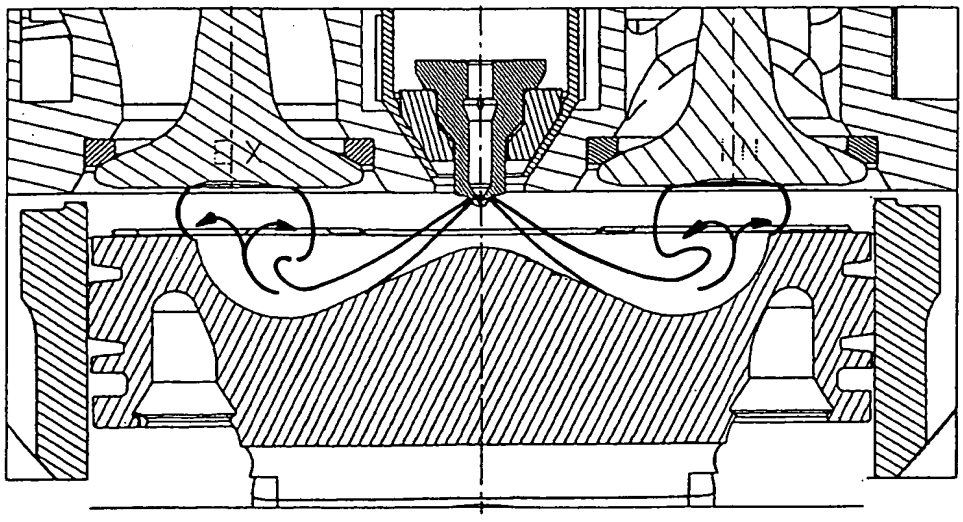


FIG. 3c



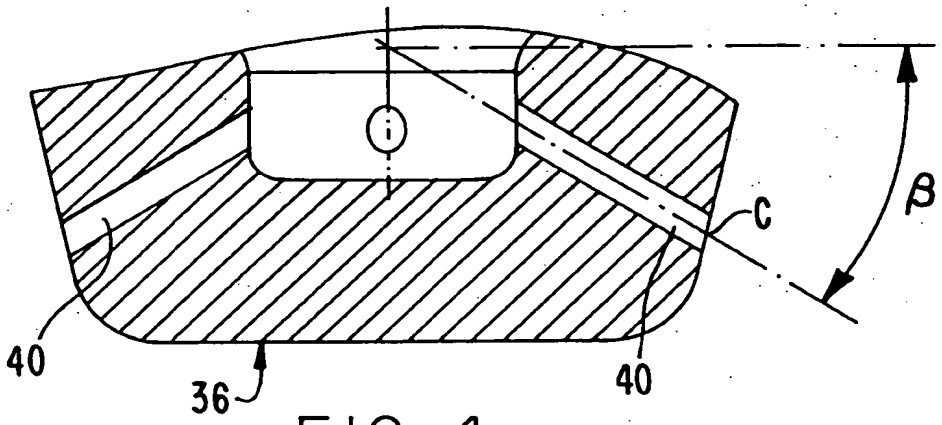

β
C
40
36
40

FIG. 4

FIG. 5

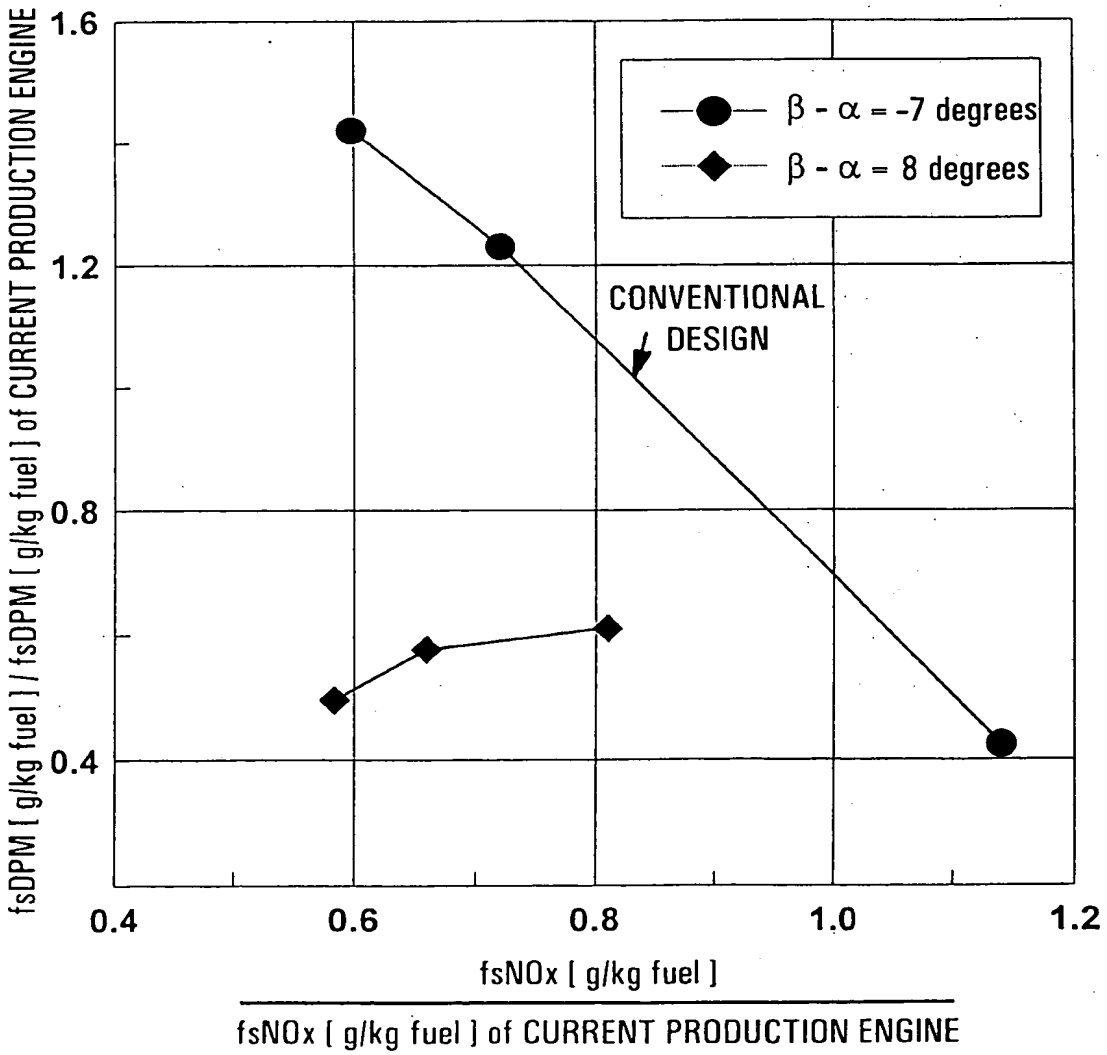

fsDPM [g/kg fuel] / fsDPM [g/kg fuel] of CURRENT PRODUCTION ENGINE
1.6
1.2
0.8
0.4
β - α = -7 degrees
β - α = 8 degrees
CONVENTIONAL DESIGN
0.4
0.6
0.8
1.0
1.2
fsNOx [g/kg fuel]
fsNOx [g/kg fuel] of CURRENT PRODUCTION ENGINE

FIG. 6

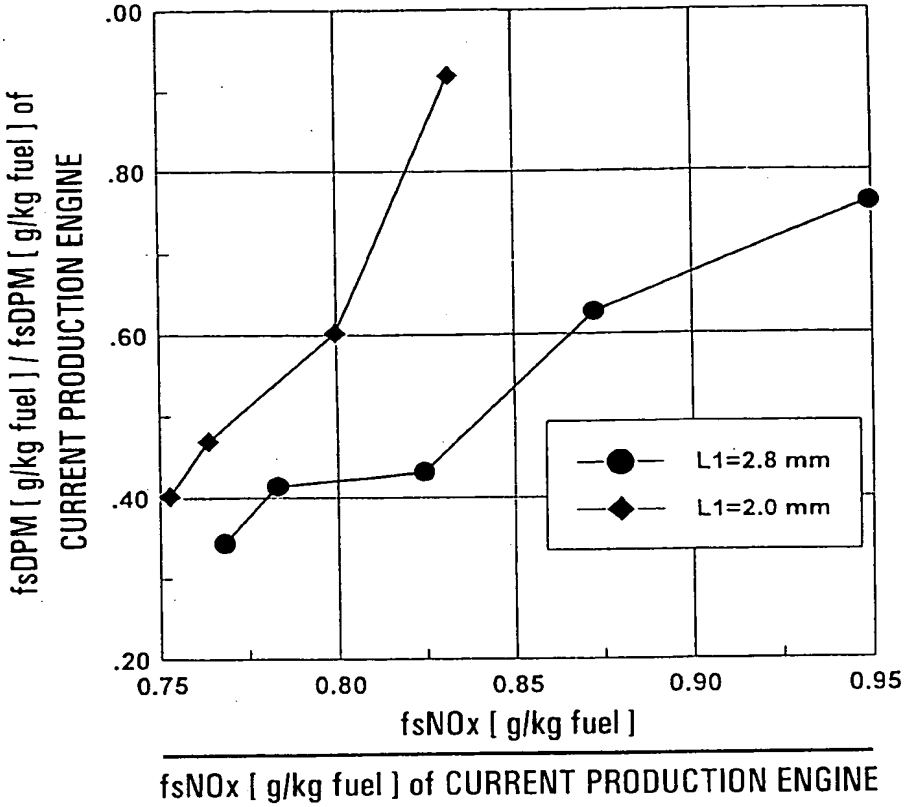
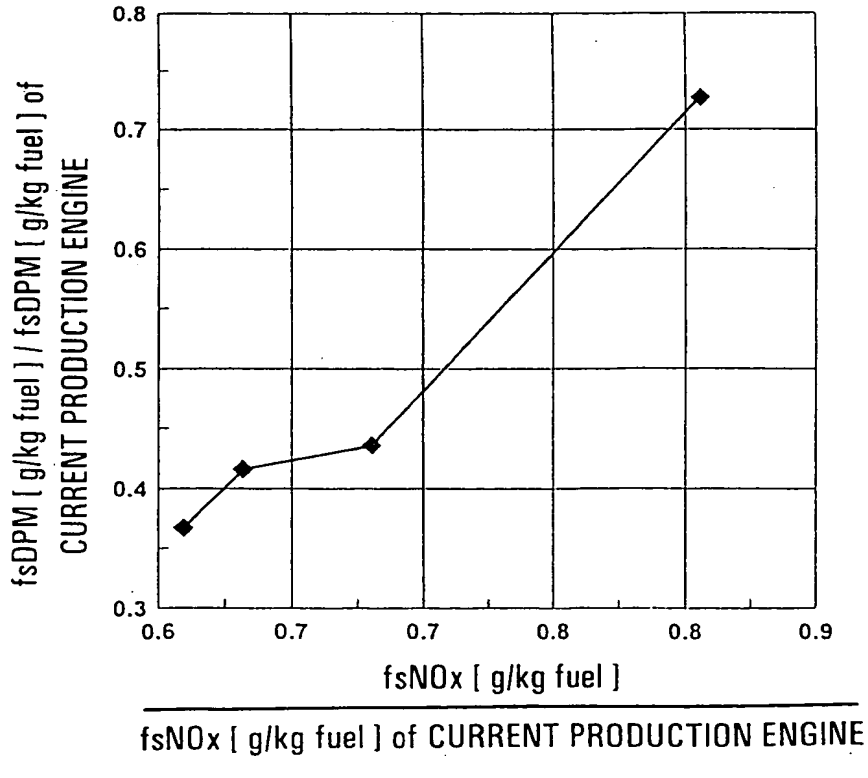

.00
.80
.60
.40
.20
0.75
0.80
0.85
0.90
0.95
fsDPM [g/kg fuel] / fsDPM [g/kg fuel] of CURRENT PRODUCTION ENGINE
fsNOx [g/kg fuel]
L1=2.8 mm
L1=2.0 mm
fsNOx [g/kg fuel] of CURRENT PRODUCTION ENGINE

FIG. 7


0.8
0.7
0.6
0.5
0.4
0.3
0.6
0.7
0.7
0.8
0.8
0.9
fsDPM [g/kg fuel] / fsDPM [g/kg fuel] of CURRENT PRODUCTION ENGINE
fsNOx [g/kg fuel]
fsNOx [g/kg fuel] of CURRENT PRODUCTION ENGINE